OLR RESEARCH REPORT

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OLR BACKGROUNDER: WHY ARE GAS PRICES SO HIGH?

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This report examines the factors that contribute to the final price that consumers pay at the pump. It is an update of OLR Report 2001-R-0509.

SUMMARY

According to the U.S. Energy Information Administration (EIA), the factors that contribute to the price of gasoline are the (1) costs of crude oil; (2) refinery costs and profits; (3) marketing, distribution, and retail costs and profits; and (4) taxes. Of these four factors, crude oil cost has the greatest influence on gasoline cost. The price of gasoline is also impacted by formulation standards, geopolitical events, and financial market behavior.

FACTORS CONTRIBUTING TO THE COST OF GASOLINE

The cost to produce and deliver gasoline to consumers includes the costs of the crude oil, refining the oil into gasoline, marketing and distributing the gasoline to gas station pumps, and federal and state taxes. While the four components remain the same, the percentage of the total cost they represent varies from month to month, depending on a number of factors.

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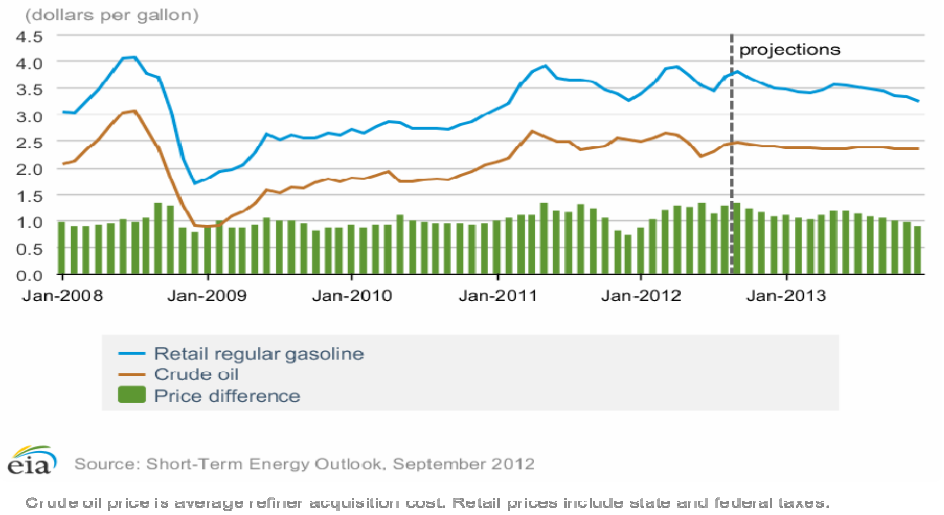
For example, in August 2012, the relative proportion of these costs in a gallon of gasoline was, according to EIA: crude oil, 64%; refining costs and profits, 18%; distribution, marketing, and retail costs and profits, 7%; and taxes, 11%. But in January 2012, the proportion for the same gallon of gasoline was: crude oil, 76%; refining costs and profits, 6%; distribution, marketing, and retail costs and profits, 6%; and taxes, 12%. In both months, as is typical, crude oil cost accounted for well over half of the gasoline price.

As Figure 1 indicates, over the long run the price of gasoline closely tracks the price of crude oil.

Figure 1: US Gasoline and Crude Oil Prices



FACTORS AFFECTING EACH OF THE FOUR COMPONENTS

Crude Oil

OPEC. Crude oil prices are determined by worldwide supply and demand, and are heavily influenced by decisions of the countries that comprise the Organization of Petroleum Exporting Countries (OPEC). OPEC currently has 12 member countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. These countries have enormous influence over the price of crude oil because they account for nearly 40% of the world's crude oil production and 81% of the world's crude oil reserves.

OPEC tries to keep world oil prices at a target level by setting limits on production by its member states. The production targets are based on both current and expected future supply and demand. According to EIA, crude oil prices typically increase when OPEC production targets are reduced. However, OPEC's efforts to control production and price levels are sometimes stymied by individual member countries that refuse to comply with the targets set by the organization. Additionally, failure to adjust production targets to changing market conditions can also impact prices.

EIA defines spare crude oil production capacity as "potential oil production that could be brought online within 30 days and sustained for at least 90 days, consistent with sound business practices…Spare capacity can serve as a buffer against oil market disruptions, and it gives OPEC additional political and economic influence in world markets." As of May 2012, OPEC's spare crude oil production capacity was less than 3% of total world oil consumption – the lowest proportion since the 4th quarter of 2008. Such low capacity is associated with increased oil price volatility.

Non-OPEC. Non-OPEC countries, including the United States, account for approximately 60% of the world's crude oil production. According to EIA, in 2011, two of the three top oil producing countries were non-OPEC: Russia (10,229 thousand barrels per day) and the United States (10,142 barrels per day). United States oil production has increased significantly over the past few years (2.065 billion barrels in 2011 compared to 1.853 billion in 2007). According to a recent Energy Department report, U.S. oil production hit a 15 year high in September 2012.

Unlike OPEC producers, non-OPEC producers generally respond to market prices instead of attempting to influence those prices by setting production targets. Non-OPEC countries tend to produce at or near full capacity, and have very little spare capacity.

When non-OPEC production is low, the total global supply decreases, resulting in an increase in oil prices. According to EIA, low non-OPEC production also results in an increase in the "call on OPEC," which in turn enables OPEC to influence oil prices by setting production targets.

Refining

The United States currently has the largest refining capacity in the world, approximately 21% of the total global capacity. According to EIA, as of January 1, 2012, there were a total of 144 operable petroleum refineries in the United States. U.S. refineries produce about 19 gallons of motor gasoline from each barrel (42 gallons) of crude oil.

Although the United States has not built any significant new refineries in the past 35 years, investments in existing refineries' infrastructures has resulted in a 13% increase in refinery capacity over that same time period. The United States imported about 678,000 barrels of gasoline per day in September 2012, and refining costs outside of the United States affect prices here.

Unexpected refinery-related crises can also impact gas prices. For example, a recent explosion at a New Brunswick, Canada oil refinery sent gas futures up by 3.7% in anticipation that the accident would decrease the refinery's 300,000 barrel-a-day output.

Distribution and Marketing

Gasoline inventories, proximity to supply, and local competition affect costs at the pump, as does ownership of the particular service station. The majority of gas stations are independently owned. The independently-owned stations may still sell gasoline under one of the major brand names.

According to EIA:

> [M]ost gasoline is shipped from the refinery first by pipeline to terminals near consuming areas where it may be blended with other products (such as ethanol) to meet local government and market specifications, and is then delivered by tanker truck to individual gasoline stations… The price on the pump includes the retailer's cost to purchase the finished gasoline and the costs of operating the service station. It also reflects local market conditions and factors, such as the desirability of the location and the marketing strategy of the owner.

Taxes

EIA reports that federal excise taxes account for 18.4 cents of the cost of each gallon, while state taxes average an additional 23.26 cents per gallon. (Connecticut's motor fuels tax is currently 25 cents a gallon). Also, EIA says that seven states impose additional sales taxes on gasoline. In other states, local county and city taxes also may affect gasoline prices.

Connecticut's petroleum products gross earning tax applies to the gross earnings of companies distributing petroleum products in the state. Although the statutory rate is 7%, the effective rate (7.53%) is higher because an oil distributor's tax base includes not only what it receives for the products at wholesale, but also all of the taxes it collects by passing the tax through to consumers. As a Connecticut Economy article explains, "suppose an oil jobber sells $100 worth of gasoline to a service station. At the current 7% statutory rate, it collects the statutory $7 of tax on the $100, but it will also owe the Department of Revenue Services (DRS) another 7% on the $7 of tax, or 49 cents; then a further 7% on the $0.49, or 3.43 cents; and so on. In the limit, the jobber will owe the DRS some $7.53 on the $100 sale, for an effective rate of 7.53%." The statutory tax rate is scheduled to increase to 8.1% on July 1, 2013.

In 2012, the legislature enacted a law (PA 12-4) that caps at $3 per gallon the amount of gross earnings from gasoline and gasohol subject to the petroleum products gross earnings tax. The law bars petroleum products distributors from including in any billing for the first sale of any petroleum products in the state any amount representing the gross earnings tax that exceeds their gross earnings tax liability.

ADDITIONAL FACTORS

Formulation Standards

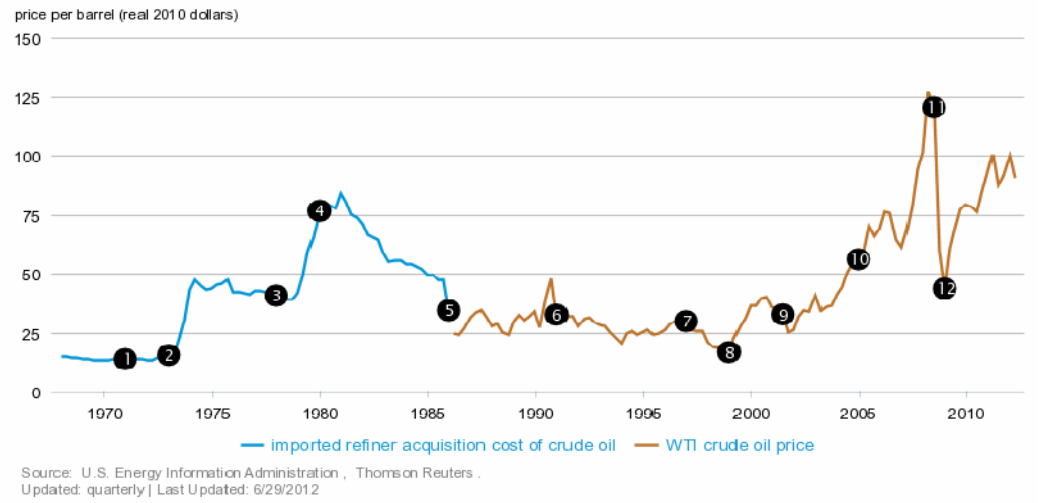
In the 1990 Clean Air Act amendments, Congress mandated cities with high smog levels to sell reformulated gasoline (RFG). According to EIA, RFG is "gasoline blended to burn more clearly than conventional gasoline and to reduce smog-forming and toxic pollutants in the air we breathe." According to the Department of Energy and Environmental Protection (DEEP), Connecticut currently requires the use of reformulated gasoline statewide.

EIA reports that conventional gasoline averages $.05-.06 less per gallon than RFG.

Geopolitical Events

According to EIA, oil and petroleum prices are also affected by geopolitical events. The events may lead to actual disruptions or fear of such disruptions, resulting in price volatility. A disruption's impact depends to a certain extent on the ability of other producers and stored surplus to offset the supply loss. Figure 2 below depicts the impact of geopolitical and economic events on crude oil prices over the past 40 years.

Figure 2: Crude Oil Prices and Key Geopolitical and Economic Events



1: US spare capacity exhausted
2: Arab Oil Embargo
3: Iranian Revolution
4: Iran-Iraq War
5: Saudis abandon swing producer role
6: Iraq invades Kuwait
7: Asian financial crisis
8: OPEC cuts production targets 1.7 mmbpd *
9: 9-11 attacks
10: Low spare capacity
11: Global financial collapse
12: OPEC cuts production targets 4.2 mmbpd*
*mmbpd=million barrels of oil per day

Financial Markets

EIA reports that the oil futures (contracts for the future delivery of oil and other energy derivatives) market influences oil prices. Market participants have different motivations. Commercial participants (those that have a direct interest in physical oil production, consumption and trade, such as airlines) and non-commercial investors (money managers and funds interested in futures for investment and diversification reasons) have shown increased trading activity over the past decade.

EIA also notes that market correlation between crude oil and other commodities increased significantly in 2008-2009 during the financial crisis. "Correlation is not the same as causation, however, and the relationship between crude oil and other financial markets is complex… Analysts continue to work to better understand the connections between these markets."

FURTHER INFORMATION

More information can be found on the EIA web site at http://www.eia.gov/ and on the web site of the American Petroleum Institute at http://www.api.org/.

Additional OLR reports that examine gas pricing include 2007-R-0401, 2008-R-0331, 2011-R-0090, and 2011-R-0251.

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